Claims

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- A method for the diagnosis of glaucoma, characterized in that in a first step, autoantibodies against ocular antigens are detected and measured in body fluids of an individual, and, in a second step, the autoantibody pattern is correlated with corresponding patterns of healthy individuals and glaucoma patients.
- The method according to claim 1 wherein the ocular antigens are retinal antigens, optic nerve antigens, optic nerve head antigens, trabecular meshwork antigens, uveal antigens, or
 a mixture of such antigens.
 - 3. The method according to claim 2 wherein the ocular antigens are retinal antigens or optic nerve head antigens or a mixture thereof.
- 4. The method according to claim 1 wherein the body fluid is serum, tears, saliva, urine, aqueous humour, or vitreous body of the eye.
 - 5. The method according to claim 4 wherein the body fluid is serum or tears.
- 20 6. The method according to claim 4 wherein the body fluid is serum.
 - 7. The method according to claim 1 wherein the autoantibody pattern consists of at least 10 autoantibodies.
- 25 8. The method according to claim 7 wherein the autoantibody pattern consists of at least 20 autoantibodies.
 - 9. The method according to claim 7 wherein the autoantibody pattern consists of at least 30 autoantibodies.
 - 10. The method according to claim 1 wherein the autoantibodies are detected and measured in a Western blot assay, chemiluminescence assay, ELISA, or RIA.

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11. The method according to claim 10 wherein the autoantibodies are detected and measured in a Western blot assay.

- 12. The method according to claim 1 wherein the autoantibodies are detected and measured on a protein chip array using surface-enhanced laser desorption / ionization (SELDI) or matrix assisted laser desorption / ionization (MALDI) mass spectrometry techniques.
- 13. The method according to claim 12 wherein the autoantibodies are detected and
 measured on a protein chip array using surface-enhanced laser desorption / ionization (SELDI) mass spectrometry technique.
- 14. The method according to claim 1 wherein the autoantibodies are detected and measured by incubating protein-A chips with sera of individuals, treating said protein-A chips with a solution of ocular antigens, separating ocular antigens bound by autoantibodies on said protein-A chips by their molecular masses, and detecting separated ocular antigens by mass spectrometry.
- 15. The method according to claim 1 wherein the autoantibodies are detected and
 20 measured by binding autoantibodies in sera of individuals to beads, treating said beads
 with a solution of ocular antigens, eluting ocular antigens bound by antigen-antibody
 reaction from the beads, and analyzing eluted ocular antigens using SELDI-TOF or
 conventional electrophoretical techniques.
- 25 16. The method according to claim 1 wherein the technique to generate the autoantibody pattern is based on digital image detection, processing, and analysis.
 - 17. The method according to claim 1 wherein autoantibodies are detected and measured in an individual's serum.
 - 18. The method according to claim 17 wherein the change in the antibody pattern over time is used to assess the progression and/or severeness of glaucoma.

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19. A method of comparison of complex autoantibody patterns by calculation wherein a pattern of autoantibodies against ocular antigens of an individual is compared with a pattern of autoantibodies against ocular antigens of healthy individuals and with a pattern of autoantibodies against ocular antigens of glaucoma patients.

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- 20. The method of comparison according to claim 19 wherein the pattern of autoantibodies against ocular antigens of glaucoma patients is the autoantibody pattern of patients with primary open-angle glaucoma or of patients with normal tension glaucoma.
- 10 21. The method of comparison according to claim 19 wherein the calculation is based on artificial neural network technique.
 - 22. A method for assessing an individual's risk for developing glaucoma with or without an elevated intraocular pressure, characterized in that in a first step, autoantibodies against ocular antigens are detected and measured in body fluids of the individual, and, in a second step, the autoantibody pattern is correlated with corresponding patterns of healthy individuals and of glaucoma patients.
- 23. A kit for the diagnosis of glaucoma according to claim 1, comprising a ready-to-use
 20 ocular antigen mixture and chemicals and materials needed to perform the biochemical analysis.
 - 24. The kit according to claim 23 wherein the chemicals and materials are suitable for conventional Western blotting technique.

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- 25. The kit according to claim 23 wherein the chemicals and materials are suitable for the SELDI-TOF technique.
- 26. The kit according to claim 23 comprising biochips.